Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>22 December 2004</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
      closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-34</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-34</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☐ All   b) ☐ Some *   c) ☐ None of:

       1. ☐ Certified copies of the priority documents have been received.

       2. ☐ Certified copies of the priority documents have been received in Application No. _____.

       3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
         application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   · Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1.   It is hereby acknowledged that the following papers have been received and placed of

record in the file: Remarks dated December 22, 2004.

2.   Claims 1-34 are presented for examination.

Specification

3.   Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and
should include that which is new in the art to which the invention pertains. If the patent is of a
basic nature, the entire technical disclosure may be new in the art, and the abstract should be
directed to the entire disclosure. If the patent is in the nature of an improvement in an old
apparatus, process, product, or composition, the abstract should include the technical disclosure
of the improvement. In certain patents, particularly those for compounds and compositions,
wherein the process for making and/or the use thereof are not obvious, the abstract should set
forth a process for making and/or use thereof. If the new technical disclosure involves
modifications or alternatives, the abstract should mention by way of example the preferred
modification or alternative.

The abstract should not refer to purported merits or speculative applications of the
invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:
(1) if a machine or apparatus, its organization and operation;
(2) if an article, its method of making;
(3) if a chemical compound, its identity and use;
(4) if a mixture, its ingredients;
(5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

4.   The abstract of the disclosure is objected to because it lacks the proper content as

described above. In essence, the abstract is too brief and lacks any significant substance that

would assist a reader in gaining a comprehensive understanding of the disclosure [i.e., new art or

an improvement; any modification or alternative embodiments; method of making the article;

steps of the method]. The importance of a comprehensive abstract is particularly pertinent in this

case as no Summary of Invention is provided. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
> in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
> patent by another filed in the United States before the invention by the applicant for patent, except that an
> international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
> subsection of an application filed in the United States only if the international application designated the United
> States and was published under Article 21(2) of such treaty in the English language.

6.   Claims 1-5 and 19-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Cave,

US Patent 6232808.

7.   In re claim 1, Cave discloses a method to determine when to send a signal [col.1, ll.11-

17], comprising:

- Receiving a set of durations [relative timing values], the set of durations including at least

  two time durations, each duration corresponding to a respective action signal [alert signal

  corresponding to each EID] to be sent at the end of the respective duration [fig.2a; col.3,

  l.6 – col.4, l.49; col.5, ll.42-54; relative timing values converted to absolute timing values

  which indicate the end of duration and the associated sending of the alert signal].

- Determining an expiration time [absolute timing value or TV as used in the detailed

  description] corresponding to each duration [relative timing value] [col.5, ll.42-54; each

  relative timing value converted to absolute timing value to be stored].

- Selecting the expiration time that is first to occur to provide a selected expiration time

  [col.3, ll.25-50; the earliest absolute timing value is effectively selected to be in the front

of the stack due to the chronological ordering as simply illustrated in the case with two

elements in a stack, the earlier absolute time would be selected first in order to be

chronologically correct].

- Sending the action signal [alert signal corresponding to each EID] corresponding to the

  selected expiration time [absolute timing value] when the selected expiration time occurs

  [col.3, ll.6-24].

8.   As to claim 2, Cave discloses the method wherein determining an expiration time

[absolute timing value] corresponding to each duration [relative timing value] includes

determining a received time [current timing value] for each duration [col.5, ll.42-54; current

timing value is tagged to each relative timing value to calculate the associated absolute timing

value].

9.   As to claim 3, Cave discloses the method wherein determining an expiration time

corresponding to each duration further includes adding each duration [relative timing value] to

its corresponding received time [current timing value] [col.5, ll.42-54].

10.   As to claim 4, Cave discloses the method wherein selecting the expiration time that is

first to occur includes comparing the expiration times to determine which of the expiration times

is first to occur [col.3, ll.25-50; the earliest absolute timing value is effectively selected to be in

the front of the stack due to the chronological ordering as simply illustrated in the case with two

elements in a stack, the absolute times would be compared and the earlier time would be selected

first in order to be chronologically correct].

11.   As to claim 5, Cave discloses the method including determining when the selected

expiration time occurs by setting a clock to send a signal at the expiration time [col.7, ll.25-33].

12.   In re claims 19-23, Cave taught method as discussed above in reference to claims 1-5;

therefore, Cave taught article of manufacture[1].

Claim Rejections - 35 USC § 103

13.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

14.   Claims 6-9 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Cave, in view of Short et al., U.S. Patent 5708814, hereinafter referred to as Short, and

Devanagundy et al., U.S. Patent 6002737, hereinafter referred to as Devanagundy.

15.   As per claim 6, Cave taught an invention to time irregular interval events, the invention

comprising of:

- Determining a first expiration time [tv1] and a second [tv2] expiration time [fig. 2b;

  col.5, ll.42-54; col.7, ll.1-6].

- Comparing the first expiration time to the second expiration time [col.7, ll.17-21].

- Selecting the first expiration time if the first expiration time is less than the second

  expiration time and selecting the second expiration time if the second expiration time

  is less than the first expiration time [col.7, ll.15-17, ll.27-29; when there are two

  elements in a queue, the lesser (earlier) expiration time would be selected to be

---

[1] Tanenbaum, "Structured Computer Organization", 2nd Edition, pg.11 as cited in first Office Action.

loaded into the compare register due to the chronological ordering of the expiration

times].

- Setting a signal send time approximately equal to the selected one of the expiration

  times [col.7, ll.29-32; the signal send time is set to the selected expiration time upon

  loading of the compare register].

16.   However, Cave did not expressly disclose a way to handle events that have expiration

times that are approximately equal.

17.   Short taught an invention to handle multiple events, the invention comprising of:

- Selecting both the first and second expiration times if the expiration times are

  approximately equal [col.3, ll.58-64; interrupt events have approximately equal

  expiration times as defined by the delay time value].

- Setting a signal send time approximately equal to the first and second expiration

  times [col.4, ll.9-12; col.6, ll.12-15; approximately equal times defined by the delay

  time value will be selected to have a common interrupt].

18.   However, Cave and Short did not expressly disclose a timing mechanism for generating a

call back signal.

19.   Devanagundy taught an invention to time multiple events, the invention comprising of:

- Determining a start time [320] [col.6, ll.30-32].

- Determining a time difference between the signal send time and the start time [352]

  [col.6, ll.6-8, ll.33-40].

- Setting a time period approximately equal to the time difference [352] [col.6, ll.34-

  36];

- Setting a timer to send a callback signal at the end of the time period [col.5, ll.41-51].

- Starting the timer at the start time [col.6, ll.44-45].

- Once the timer sends the call back signal, sending the action signal(s) corresponding to the selected expiration time [col.6, ll.1-3, ll.10-14].

20.   An ordinary artisan at the same time the invention was made would have been motivated to look for a more efficient way to handle multiple events with approximately equal request/expiration times [see Short: col.1, ll.13-50] and also different time out periods [see Devanagundy: col.1, ll.46-59].

21.   Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Short, Cave, and Devanagundy because of the aforementioned motivations and also their involvement in similar problems regarding the timing and handling of multiple events.

22.   As per claim 7, Cave discloses each and every limitation of the claim as discussed above in reference to claims 1 and 2.

23.   As per claim 8, Devanagundy taught determining an expiration time includes adding the corresponding duration and received time [430].

24.   As per claim 9, Case taught sequentially handling next event after expiration of previous event [col.7, ll.34-35].

25.   As per claims 24-25, Short, Devanagundy and Cave taught method as discussed above in reference to claims 6-9; therefore, Short, Devanagundy and Cave taught article of manufacture.

26.   Claims 10 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Short,

Cave, and Devanagundy as applied to claim 6 above, and further in view of Cave, U.S. Patent

6314524, hereinafter referred to as ReCave.

27.   Short, Cave, and Devanagundy taught an invention to time multiple events with

approximately equal expiration times and a callback timer.

28.   However, Short, Cave, and Devanagundy did not expressly disclose a way to handle

repetitive events.

29.   ReCave taught an invention to time multiple events, the invention comprising of:

* Checking a first indicator upon sending the first action signal, the first indicator

    corresponding to whether the first action signal should be sent again [301].

* Determining a third expiration time if the first indicator indicates the first action

    signal should be sent again [305].

30.   An ordinary artisan at the same time the invention was made would have been motivated

to look for a way to handle repetitive events needed in applications such as computer screen

updates [see ReCave: col.2, ll.40-67].

31.   Accordingly, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine the teachings of ReCave, Short, Cave, and Devanagundy

because of the aforementioned motivation and also their involvement in similar problems

regarding the timing and handling of multiple events.

32.   Claims 11-12 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Devanagundy, in view of Cave.

33.   As per claim 11, Devanagundy taught an invention to time multiple events, the invention

comprising of:

- Determining a start time [fig.4, item 320; col.6, ll.30-32];

- Determining a time difference between the signal send time and the start time [352] [col.6, ll.6-8, ll.33-40];

- Setting a time period approximately equal to the time difference [352] [col.6, ll.34-36];

- Setting a timer to send a callback signal at the end of the time period [col.5, ll.41-51];

- Starting the timer at the start time [col.6, ll.44-45]; and

- Once the timer sends the call back signal, sending the action signal(s) corresponding to the selected expiration time [col.6, ll.1-3, ll.10-14].

34.   However, Devanagundy did not disclose explicitly selecting an expiration time based on chronological order.

35.   Cave taught an invention to time irregular interval events, the invention comprising of:

- Receiving a set of at least two durations, each duration corresponding to a respective action signal to be sent at the end of the respective duration [fig.2a; col.3, l.6 – col.4, l.49; col.5, ll.42-54].

- Determining a received time for each duration to determine a corresponding expiration time [col.5, ll.42-54;].

- Determining an expiration time corresponding to each duration [col.5, ll.42-5].

- Determining an expiration time includes adding the corresponding duration and received time [col.5, ll.42-54].

- Determining a set of expiration times corresponding to a set of durations [fig.2B; col.7, ll.1-6];

- Comparing the first expiration time to the second expiration time [col.7, ll.17-21];

- Selecting the expiration time that is first to occur to provide a selected expiration time [col.7, ll.13-21]; and

- Setting a signal send time approximately equal to the selected one of the expiration times [col.7, ll.29-32].

36.   An ordinary artisan at the same time the invention was made would have been motivated to look for an efficient and cost-effective way to time events [see Cave: col.2, ll.39-47; col.4, ll.50-67; col.5, ll.4-54]. Additionally, having the capability to time events in a chronological manner complies with the expected functionality of a timer. It is only logical to time a series of events in a chronological manner to ensure total coverage of the events.

37.   Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Cave and Devanagundy because of the aforementioned motivations and also their involvement in similar problems regarding the timing of multiple events.

38.   As per claim 12, Case taught sequentially handling next event after expiration of previous event [col.7, ll.34-35].

39.   As per claims 27-28, Devanagundy and Cave taught method as discussed above in reference to claims 11-12; therefore, Devanagundy and Cave taught article of manufacture.

40.   Claims 13-14 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Cave and Devanagundy as applied to claim 11 above, and further in view of Cave, U.S. Patent

6314524, hereinafter referred to as ReCave.

41.   Cave and Devanagundy taught an invention to time multiple events with approximately

equal expiration times and a callback timer.

42.   However, Cave and Devanagundy did not expressly disclose a way to handle repetitive

events.

43.   ReCave taught an invention to time multiple events, the invention comprising of:

- Checking a first indicator upon sending the first action signal, the first indicator

   corresponding to whether the first action signal should be sent again [fig.3; 301].

- Determining a third expiration time if the first indicator indicates the first action

   signal should be sent again [fig.3; 305].

44.   An ordinary artisan at the same time the invention was made would have been motivated

to look for a way to handle repetitive events needed in applications such as computer screen

updates [see ReCave: col.2, ll.40-67].

45.   Accordingly, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine the teachings of ReCave, Cave, and Devanagundy because of the

aforementioned motivation and also their involvement in similar problems regarding the timing

and handling of multiple events.

46.   Claims 15-16 and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Basso et al., U.S. Patent 5491815, hereinafter referred to as Basso, in view of Cave and

Devanagundy.

47.   As per claim 15, Basso taught an invention to handle multiple timers, the invention

comprising of:

- Receiving first timing information corresponding to a first action signal, the first

  timing information including a first duration and a first flag [col.4, ll.46-53].

- If the first flag indicated an active status, determining a first expiration time, and

  including the first expiration time in a set of expiration times to be considered [col.6,

  ll.59-63].

- Doing likewise as first timing information when receiving second timing information

  [col.3, ll.24-35].

48.   However, Basso did not expressly disclose selecting an expiration time based on

chronological order.

49.   Cave taught an invention to time irregular interval events, the invention comprising of:

- Receiving a set of expiration times, each expiration time corresponding to a

  respective action signal to be sent at the end of the expiration time [col.7, ll.1-17].

- Selecting the expiration time that is first to occur to provide a selected expiration time

  [col.7, ll.13-21].

50.   However, Cave and Basso did not expressly disclose a timing mechanism for generating

a call back signal.

51.   Devanagundy taught an invention to time multiple events, the invention comprising of:

- Determining a start time [320] [col.6, ll.30-32].

- Determining a time difference between the signal send time and the start time [352]

  [col.6, ll.6-8, ll.33-40].

- Setting a time period approximately equal to the time difference [352] [col.6, ll.34-36].

- Setting a timer to send a callback signal at the end of the time period [col.5, ll.41-51].

- Starting the timer at the start time [col.6, ll.44-45].

- Once the timer sends the call back signal, sending the action signal(s) corresponding to the selected expiration time [col.6, ll.1-3, ll.10-14].

52.   An ordinary artisan at the same time the invention was made would have been motivated to look for an efficient and cost-effective way to time events [see Cave: col.2, ll.39-47; col.4, ll.50-67; col.5, ll.4-54] with different time out periods [see Devanagundy: col.1, ll.46-59]. Additionally, having the capability to time events in a chronological manner complies with the expected functionality of a timer. It is only logical to time a series of events in a chronological manner to ensure total coverage of the events.

53.   Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Basso, Cave, and Devanagundy because of the aforementioned motivations and also their involvement in similar problems regarding the timing and handling of multiple events.

54.   As per claim 16, Basso taught at least one of the flags corresponding to the selected expiration time is set to an inactive status once the corresponding action signal is sent [col.8, ll.59-65].

55.   As per claims 31-32, Basso, Devanagundy and Cave taught method; therefore, Basso, Devanagundy and Cave taught article of manufacture.

56.   Claims 17-18 and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Basso, Cave, and Devanagundy as applied to claim 15 above, and further in view of ReCave.

57.   Basso, Cave, and Devanagundy taught an invention to sequentially handling next event

after expiration of previous event [see Cave: col.7, ll.34-35] with status flags and a callback

timer.

58.   However, Basso, Cave, and Devanagundy did not expressly disclose a way to handle

repetitive events.

59.   ReCave taught an invention to time multiple events, the invention comprising of:

- Checking a first indicator upon sending the first action signal, the first indicator

    corresponding to whether the first action signal should be sent again [fig3; 301].

- Determining a third expiration time if the first indicator indicates the first action

    signal should be sent again [fig.3; 305].

60.   Since the flag as taught by Basso is used to indicate active or inactive status of the event

entity, the determination of a third expiration time based on the first indicator as taught by

ReCave would logically have depended upon the checking of the status flag.

61.   An ordinary artisan at the same time the invention was made would have been motivated

to look for a way to handle repetitive events needed in applications such as computer screen

updates [see ReCave: col.2, ll.40-67].

62.   Accordingly, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine the teachings of ReCave, Basso, Cave, and Devanagundy

because of the aforementioned motivation and also their involvement in similar problems

regarding the timing and handling of multiple events.

Response to Arguments

63.   Applicant's arguments, filed December 22, 2004, with respect to the restriction

requirement dated November 23, 2004, have been fully considered. In light of Applicant's own

admission that the subcombinations of Groups I-III are not "disclosed as usable together in a

single combination", Examiner withdraws the previous requirement for restriction.

64.   Applicant's arguments, filed August 30, 2004, have been considered but are moot in view

of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Tse Chen whose telephone number is (571) 272-3672. The

examiner can normally be reached on Monday - Friday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Lynne Browne can be reached on (571) 272-3670. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tse Chen
March 12, 2005

LYNNE H. BROWNE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100